

What is claimed is:

1. An apparatus for generating a part program with description of measurement procedures to be used in an image-measuring instrument for measuring a work based on image data obtained by imaging said work, said apparatus comprising:
  - a work data input means for reading work data of said work;
  - a display means for graphically displaying said work data read by said input means;
  - a graphic selection means for selecting a graphic corresponding to an element to be measured in said work among said work data displayed by said display means;
  - a measurement condition setting means for previously setting measurement conditions containing a generation condition on an edge detection tool applicable to each graphic type; and
  - a part program generation means for generating an edge detection tool corresponding to said each selected graphic based on said measurement conditions set in said setting means, and for generating a part program containing an edge detection command by said generated edge detection tool.
2. The apparatus for generating a part program according to claim 1, wherein said part program generation means determines a position and direction of said edge detection tool based on vector data of said each selected graphic, and determines a length and number of said edge detection tool(s) based on an edge detection tool generation condition with respect to that graphic.
3. The apparatus for generating a part program according to claim 1, further comprising an editing means for

editing said edge detection tool placed by said generated part  
program, wherein said display means graphically displays said  
work data by the same magnification as that of an image to be  
imaged during an operation of editing said edge detection tool  
5 by said editing means.

4. The apparatus for generating a part program  
according to claim 1, wherein said measurement condition setting  
means sets tolerance information for tolerance checking per said  
10 element to be measured, and said part program generation means  
records tolerance information for tolerance checking in said  
part program based on said tolerance information set by said  
measurement condition setting means.

15 5. The apparatus for generating a part program  
according to claim 1, wherein said measurement condition setting  
means sets an auto-focus execution condition for allowing said  
image-measuring instrument to execute an auto-focusing  
operation, and said part program generation means records an  
20 auto-focus command in said part program based on said auto-focus  
execution condition set by said measurement condition setting  
means.

25 6. The apparatus for generating a part program  
according to claim 1, wherein said part program generation means  
sets a determination area, for generating an edge detection tool,  
in a display area for image information obtained by practically  
imaging said work, describing said edge detection command based  
on said generated edge detection tool in said part program only  
30 if an edge detection tool generated in accordance with said edge  
detection tool generation condition set by said measurement

condition setting means is contained in said determination area, and alarm displaying and terminating to generate edge detection tools if said generated edge detection tool is not contained in said determination area.

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7. The apparatus for generating a part program according to claim 1, wherein said measurement condition setting means sets primary and secondary candidates of edge detection tools generated per each graphic type as edge detection tool generation conditions, said part program generation means sets a determination area, for generating an edge detection tool, in a display area for image information obtained by practically imaging said work, describing said edge detection command based on said generated edge detection tool in said part program only if an edge detection tool generated in accordance with said primary candidate of said edge detection tool generation condition set by said measurement condition setting means is contained in said determination area, and generating said edge detection tool of said secondary candidate if said generated edge detection tool is not contained in said determination area.

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8. The apparatus for generating a part program according to claim 1, wherein said part program generation means generates a part program, when a plurality of edge detection tools are contained in a certain determination area set in a display area for image information obtained by practically imaging said work, so as to allow said plurality of edge detection tools to successively execute edge detection commands without any stage movement in said image-measuring instrument.

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9. The apparatus for generating a part program

according to claim 8, wherein said part program generation means generates a part program containing a stage movement command that allows the greatest number of edge detection tools to be contained in said determination area.

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*9a1* 10. ~~The apparatus for generating a part program~~  
according to any one of claims 1-9, wherein said work data  
comprises CAD data of or image data of said work.

10 11. A method of generating a part program with  
description of measurement procedures to be used in an  
image-measuring instrument for measuring a work based on image  
~~data obtained by imaging said work, said method comprising:~~

reading work data of said work;

15 graphically displaying said work data read;

generating an edge detection tool, for a graphic  
corresponding to an element to be measured in said work selected  
by a selection operation among said work data displayed, based  
on said measurement conditions containing a generation condition

20 on an edge detection tool applicable to each graphic type  
previously set; and

generating a part program containing an edge detection  
command by said generated edge detection tool.

25 12. A medium for recording a part program generator for  
generating a part program with description of measurement  
procedures to be used in an image-measuring instrument for  
measuring a work based on image data obtained by imaging said  
work, said part program generator comprising the steps of:

30 reading work data of said work;

graphically displaying said work data read at said step

of reading;

selecting a graphic corresponding to an element to be measured in said work among said work data displayed at said step of displaying;

5       previously setting measurement conditions containing a generation condition on an edge detection tool applicable to each graphic type; and

generating an edge detection tool corresponding to said each selected graphic based on said measurement conditions set at said step of setting, and generating a part program containing  
10       an edge detection command by said generated edge detection tool.

13.   A program of generating a part program with description of measurement procedures to be used in an  
15       image-measuring instrument for measuring a work based on image data obtained by imaging said work, said part program generator comprising the steps of:

reading work data of said work;

graphically displaying said work data read at said step  
20       of reading;

selecting a graphic corresponding to an element to be measured in said work among said work data displayed at said step of displaying;

previously setting measurement conditions containing a  
25       generation condition on an edge detection tool applicable to each graphic type; and

generating an edge detection tool corresponding to said each selected graphic based on said measurement conditions set at said step of setting, and generating a part program containing  
30       an edge detection command by said generated edge detection tool.

14. An image-measuring instrument for measuring a work based on image data obtained by imaging said work, comprising:

a part program input means for reading a part program with description of measurement procedures containing CAD data  
5 corresponding to said work;

a part program execution means for executing said part program read by said part program input means to obtain a measured result for each element to be measured in said work;

a graphic information generation means for generating  
10 graphic information of said measured result for each element to be measured, based on said measured result obtained by said part program execution means; and

a display means for displaying graphic information of said measured result generated by said graphic information generation  
15 means and graphic information as a design value in the corresponding CAD data, superimposing them in an identifiable form.

15. The image-measuring instrument according to claim  
20 14, wherein said display means numerically displays, in the proximity of said graphic information of said measured result and said graphic information as said design value, error information on both graphic information.

25 16. A method of displaying a measured result from an image-measuring instrument for measuring a work based on image data obtained by imaging said work, comprising:

executing a part program with description of measurement procedures containing CAD data corresponding to said work to  
30 obtain a measured result for each element to be measured in said work;

generating graphic information of said measured result  
for each element to be measured, based on said measured result;  
and

displaying graphic information of said measured result  
5 and graphic information as a design value in the corresponding  
CAD data, superimposing them in an identifiable form.

17. A medium for storing a program of displaying measured  
results from an image-measuring instrument for measuring a work  
10 based on image data obtained by imaging said work, said program  
comprising the steps of:

reading a part program with description of measurement  
procedures containing CAD data corresponding to said work;

executing said part program read at said step of reading  
15 to obtain a measured result for each element to be measured in  
said work;

generating graphic information of said measured result  
for said each element to be measured, based on said measured  
result obtained at said step of executing; and

20 displaying graphic information of said measured result  
generated at said step of generating and graphic information  
as a design value in the corresponding CAD data, superimposing  
them in an identifiable form.

25 18. A program of displaying measured results from an  
image-measuring instrument for measuring a work based on image  
data obtained by imaging said work, said program comprising the  
steps of:

reading a part program with description of measurement  
30 procedures containing CAD data corresponding to said work;  
executing said part program at said step of reading to

obtain a measured result for each element to be measured in said work;

generating graphic information of said measured result for each element to be measured, based on said measured result  
5 obtained at said step of executing; and

displaying graphic information of said measured result generated at said step of generating and graphic information as a design value in the corresponding CAD data, superimposing them in an identifiable form.